Amendments to the Specification:

Please replace paragraph [0001] with the following amended paragraph:

[0001] This is a national phase application of International Application PCT/GB04/004141, filed September 28, 2004, and claims priority to United Kingdom Patent Application No. 0323055.4, filed October 2, 2003. This invention relates to particulate detection and in particular to apparatus and methods for the detection, including monitoring of particulate.

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (previously presented): An apparatus for detecting presence of transient particulate in gas within a duct, said apparatus comprising at least one emitter of illumination selected from infra-red, ultraviolet and visible radiation capable of being projected over essentially the entire cross section of the duct and at least one detector for detecting any sparkle of the illumination from the particulate.

Claim 2 (previously presented): An apparatus as in claim 1 in which the emitter of illumination is a single emitter.

Claim 3 (currently amended): An apparatus as in ~~either~~ claim 1 ~~or 2~~ in which the illumination has a wavelength in the range 460nm to 680nm.

Claim 4 (currently amended): An apparatus as in ~~any one of~~ claim[[s]] 1 ~~to 3~~ in which the emitter is a laser.

Claim5 (previously presented): An apparatus as in claim 4 in which the illumination has a wavelength in the range 532nm to 680nm.

Claim 6 (currently amended): An apparatus as in ~~any one of~~ claim[[s]] 1 ~~to 5~~ in which the detector is a camera.

Claim 7 (currently amended): An apparatus as in ~~any one of~~ claim[[s]] 1 ~~to 5~~ in which the detector is at least one phototransistor.

Claim 8 (currently amended): An apparatus as in ~~any one of~~ claim[[s]] 1 ~~to 5~~ in which the detector is a video camera.

Claim 9 (currently amended): An apparatus as in ~~any one of~~ claim[[s]] 1 ~~to 8~~ in which the detectors are arranged around the illumination emitter.

Claim 10 (currently amended) An apparatus as in ~~any one of~~ claim[[s]] 1 ~~to 9~~ in which the illumination from the emitter is fanned.

Claim 11 (previously presented): An apparatus as in ~~claimed in~~ claim 10 in which the detector is fanned by a line generator.

Claim 12 (previously presented): An apparatus as in ~~claimed in~~ claim 10 in which the illumination is fanned by an optical lens.

Claim 13 (currently amended): An apparatus as in ~~any one of~~ claim[[s]] 1 ~~to 9~~ in which the illumination from the emitter is scanned.

Claim 14 (previously presented): An apparatus as in claim 13 in which the llumination from the emitter is scanned in the duct by a mirror, movement of which directs the illumination in the duct.

Claim 15 (currently amended): An apparatus as in ~~any one of~~ claim[[s]] 1 ~~to 14~~ in which the emitter illumination frequency is matched to a detector specific for that frequency.

Claim 16 (currently amended): An apparatus as in ~~any one of~~ claim[[s]] 1 ~~to 15~~ in which the emitter of illumination and the detector are located outside the duct wall,

the duct wall being provided with transparent window so that illumination and sparkle are transmitted through the duct wall through transparent windows.

Claim 17 (currently amended): An apparatus for detecting particulate within a duct as claimed in ~~any one of~~ claim[[s]] 1 ~~to 16~~ which also comprises a duct, located on which is at least one emitter of illumination capable of being projected over a substantial cross section of the duct and at least one detector for detecting any sparkle of the illumination from the particulate.

Claim 18 (previously presented): An apparatus as claimed in claim 17 which is located in the duct at the inlet to an industrial process.

Claim 19 (previously presented): An apparatus as claimed in claim 17 which is located in the duct at the outlet from an industrial process.

Claim 20 (previously presented): An apparatus as claimed in claim 18 which the apparatus is located in the duct upstream of a turbine in the inlet to an industrial process having regard to the direction of the gas in the inlet.

Claim 21 (previously presented): An apparatus as claimed in claim 19 which the

apparatus is located in the duct downstream of a turbine in the outlet from an industrial process having regard to the direction of the gas in the outlet.

Claim 22 (previously presented): A method for detecting presence in gas of transient particulate above its normal zero or acceptable level within a duct which comprises subjecting a duct with at least one emitter of illumination selected from infra-red, ultraviolet and visible radiation, projecting the illumination over a substantial cross section of the duct and detecting any sparkle of the illumination from the particulate.

Claim 23 (previously presented): A method as claimed in claim [[23]] 22 which comprises projecting the radiation in the duct at a position after the gas has been through an abatement system.

Claim 24 (currently amended): A method as claimed in either claim 23 ~~or 24~~ which comprises detecting transient particulate in a duct at the inlet to an industrial process.

Claim 25 (currently amended): A method as claimed in ~~either~~ claim 23 ~~or 24~~ which comprises detecting transient particulate in a duct at the outlet from an industrial

process.

Claim 26 (previously presented): A method as claimed in claim 25 which comprises detecting transient particulate in a duct upstream of a turbine in the inlet to an industrial process having regard to the direction of the gas in the outlet.

Claim 27 (previously presented): A method as claimed in claim 26 which comprises detecting transient particulate in a duct downstream of a turbine in the outlet from an industrial process having regard to the direction of the gas in the outlet.

Claim 28 (previously presented): A method as claimed in claim 27 in which the industrial process is an electricity generating station.

Claim 29 (previously presented): A method as claimed in Claim 24 in which the abatement system is in the inlet to an area requiring an essentially particulate free environment.

Claim 30 (previously presented): A method as claimed in claim 30 in which the essentially particulate free environment is in a hospital.